CLAIMS

1. Fuse-relay including a first pole (1, 11, 21, 31, 81) and a second pole (2, 12, 22, 32, 82), c h a r a c t e r i s e d in that the fuse-relay includes a resilient device (5, 18, 27, 37, 87) that is held in an elastically deformed position by a fuse (6, 16, 26, 36, 86) when the fuse (6, 16, 26, 36, 86) is whole; and in that the resilient device (5, 18, 27, 37, 87) is arranged to make a connection between the first pole (1, 11, 21, 31, 81) and the second pole (2, 12, 22, 32, 82) when the fuse (6, 16, 26, 36, 86) is blown.

2. Fuse-relay, according to claim 1, c h a r a c t e r i s e d in that the fuse-relay further includes a third pole (13, 23, 33, 83) and a fourth pole (14, 24, 34, 84), in that the fuse (16, 26, 36, 86) is arranged to be blown when a sufficiently high current is sent between the third pole (13, 23, 33, 83) and the fourth pole (14, 24, 34, 84).

3. Fuse-relay according to claim 2, c h a r a c t e r i s e d in that the fuse-relay further includes a first metal blade (10) connected to the first pole (11) and a second metal blade (17) connected to the second pole (12); in that the resilient device includes a blade spring (18); in that the blade spring is arranged to be bent when the fuse (16) is whole; and in that the blade spring (18) is arranged to be released and to press the second metal blade (17) into contact with the first metal blade (10) to make contact between the first pole (11) and the second pole (12) when the fuse (16) is blown.

4. Fuse-relay according to claim 2, c h a r a c t e r i s e d in that the resilient device includes a coil spring (27) with a switch contact (28); in that the coil spring (27) is arranged to be compressed when the fuse (26) is whole; and in that the coil spring (27) is arranged to be released and

to press the switch contact (28) towards the first pole (21) and the second pole (22) to make contact between the first pole (21) and the second pole (22) when the fuse (26) is blown.

5. Fuse-relay according to claim 2, c h a r a c t e r i s e d in that the resilient device includes a coil spring (37) with a switch contact (38); in that the coil spring (37) is arranged to be stretched when the fuse (36) is whole; and in that the coil spring (37) is arranged to be released and to press the switch contact (38) towards the first pole (31) and the second pole (32) to make contact between the first pole (31) and the second pole (32) when the fuse is blown.

6. Fuse-relay according to claim 2, c h a r a c t e r i s e d in that the resilient device includes a torsion spring (87) and a switch contact (88); in that the torsion spring (87) is arranged to be twisted when the fuse (86) is whole; and in that the torsion spring (87) is arranged to be released and to press the switch contact (88) towards the first pole (81) and the second pole (82) to make contact between the first pole (81) and the second pole (82) when the fuse (86) is blown.

7. Fuse-relay including a first pole (42, 52, 62, 92) and a second pole (12, 51, 61, 91) and a c h a r a c t e r i s e d in that a resilient device is held in an elastically deformed position by a fuse (16, 26, 36, 86) when the fuse (16, 26, 36, 86) is whole; and in that the resilient device is arranged to break a connection between the second pole (12, 51, 61, 91) with the first pole (42, 52, 62, 92) when the fuse (16, 26, 36, 86) is blown.

8. Fuse-relay, according to claim 7, c h a r a c t e r i s e d in that the fuse-relay further includes a third pole (13, 23, 33, 83) and a fourth pole (14, 24, 34, 84), in that the fuse (16, 26, 36, 86) is

arranged to be blown when a sufficiently high current is sent between the third pole (13, 23, 33, 83) and the fourth pole(14, 24, 34, 84).

9. Fuse-relay according to claim 8, c h a r a c t e r i s e d in that the fuse-relay further includes a first metal blade (43) connected to the first pole (42) and a second metal blade (17) connected to the second pole (12); in that the resilient device includes a blade spring; (18) in that the blade spring (18) is arranged to be bent when the fuse (16) is whole; and in that the blade spring (18) is arranged to be released and to press the second metal blade (17) from contact with the first metal blade (43) to break contact between the first pole (42) and the second pole (12) when the fuse is blown.

10. Fuse-relay according to claim 8, c h a r a c t e r i s e d in that the resilient device includes a coil spring (27) with a switch contact (28); in that the coil spring (27) is arranged to be compressed when the fuse (26) is whole; and in that the coil spring (27) is arranged to be released and to press the switch contact (28) from the first pole (52) and the second pole (51) to break contact between the first pole (52) and the second pole (51) when the fuse (26) is blown.

11. Fuse-relay according to claim 8, c h a r a c t e r i s e d in that the resilient device includes a coil spring (37) with a switch contact (38); in that the coil spring (37) is arranged to be stretched when the fuse (36) is whole; and in that the coil spring (37) is arranged to be released and to press the switch contact (38) from the first pole (62) and the second pole (61) to break contact between the first pole (62) and the second pole (61) when the fuse (36) is blown.

12. Fuse-relay according to claim 8, characterised in that the resilient device includes a torsion spring (87) and a switch contact (88); in that the torsion spring (87) is arranged to be twisted when the fuse (86) is whole; and in that the torsion spring (87) is arranged to be released and to press the switch contact (88) from the first pole (92) and the second pole (91) to break contact between the first pole (92) and the second pole (91) when the fuse (86) is blown.

13. Fuse-relay including a first pole (11, 21, 31, 81), a second pole (12, 22, 32, 82) and a fifth pole (42, 52, 62, 92), characterised in that the fuse-relay further includes a resilient device (18, 27, 37, 87) that is held in an elastically deformed position by a fuse when a fuse (16, 26, 36, 86) is whole; and in that the resilient device (18, 27, 37, 87) is arranged to make a connection between the first pole (11, 21, 31, 81) and the second pole (12, 22, 32, 82) and to break a connection between the second pole (12, 22, 32, 82) and the fifth pole (42, 52, 62, 92) when the fuse (16, 26, 36, 86) is blown.

14. Fuse-relay, according to claim 13, characterised in that the fuse-relay further includes a third pole (13, 23, 33, 83) and a fourth pole (14, 24, 34, 84), in that the fuse (16, 26, 36, 86) is arranged to be blown when a sufficiently high current is sent between the third pole (13, 23, 33, 83) and the fourth pole (14, 24, 34, 84).

15. Fuse-relay according to claim 14, characterised in that the fuse-relay further includes a first metal blade (10) connected to the first pole (11), a second metal blade (17) connected to the second pole (12) and a fifth metal blade (43) connected to the fifth pole (42); in that the resilient device includes a blade spring (18); in that the blade spring (18) is arranged

to be bent when the fuse (16) is whole; and in that the blade spring (18) is arranged to be released and to press the second metal blade (17) into contact with the first metal blade (10) to make contact between the first pole (11) and the second pole (12) and to press the second metal blade (17) from contact with the fifth metal blade (43) to break contact between the fifth pole (42) and the second pole (12) when the fuse (16) is blown.

16. Fuse-relay according to claim 14, characterised in that the resilient device includes a coil spring (27) with a switch contact (28); in that the coil spring (27) is arranged to be compressed when the fuse (26) is whole; and in that the coil spring (27) is arranged to be released and to press the switch contact (28) towards the first pole (21) and the second pole (22) to make contact between the first pole (21) and the second pole (22) and to press the switch contact from the fifth pole (52) and the second pole (22) to break contact between the fifth pole (52) and the second pole (22) when the fuse (26) is blown.

17. Fuse-relay according to claim 14, characterised in that the resilient device includes a coil spring (37) with a switch contact (38); in that the coil spring (37) is arranged to be stretched when the fuse (36) is whole; and in that the coil spring (37) is arranged to be released and to press the switch contact (38) towards the first pole (31) and the second pole (32) to make contact between the first pole (31) and the second pole (32) and to press the switch contact (38) from the fifth pole (62) and the second pole (32) to break contact between the fifth pole (62) and the second pole (32) when the fuse (36) is blown.

18. Fuse-relay according to claim 14, characterised in that the resilient device includes a torsion spring (87) and a switch contact (88); in

that the torsion spring (87) is arranged to be twisted when the fuse (86) is whole; and in that the torsion spring (87) is arranged to be released and to press the switch contact (88) towards the first pole (81) and the second pole (82) to make contact between the first pole (81) and the second pole (82) and to press the switch contact from the fifth pole (92) and the second pole (82) to break contact between the fifth pole (92) and the second pole (82) when the fuse (86) is blown.

19. Fuse-relay according to any of the claims 1 to 18, c h a r a c t e r i s e d in that the third pole (13, 23, 33, 83) and the fourth pole (14, 24, 34, 84) are isolated from the other poles (11, 21, 31, 81, 12, 22, 32, 82, 42, 52, 62, 92).

20. Fuse-relay according to any of the claims 1 to 19, c h a r a c t e r i s e d in that the fuse relay includes an indicator (74) indicating if the fuse (6, 16, 26, 36, 86) is whole or blown.

21. Fuse-relay according to any of the claims 1 to 20, c h a r a c t e r i s e d in that the fuse-relay includes a test button (74) arranged to test connections without blowing the fuse (6, 16, 26, 36, 86).

22. Cross-connect, including at least one switch matrix, said switch matrix including switching rows (131), switching columns (132), and relays (133), each relay (133) including a first pole (11, 21, 31, 81) connected to one of the switching columns (132) and a second pole (12, 22, 32, 82) connected to one of the switching rows (131), c h a r a c t e r i s e d in that at least some of the relays (133) are fuse-relays according to any of the claims 1 to 21.

23. Cross-connect, according to claim 22, c h a r a c t e r i s e d in that the cross-connect further

includes addressing rows (121) and addressing columns (122); and in that said relays (133) further each includes a third pole (13, 23, 33, 83) connected to one of the addressing rows (121) and a fourth pole (14, 24, 34, 84) connected to one of the addressing columns (122).

24. Cross-connect, according to claim 23, characterised in that the cross-connect further includes a row multiplexor (125) connected to the addressing rows (121) and a column multiplexor (127) connected to the addressing columns (122).

25. Cross-connect, according to any of the claims 22 to 24, characterised in that the cross-connect further includes additional switching rows (141); in that at least some of the relays (133) are fuse-relays according to any of the claims 13 to 21; and in that said relays further each includes a fifth pole (42, 52, 62, 92) connected to one of the additional switching rows (141).

26. Cross-connect, according to any of the claims 22 to 25, characterised in that all of the switching rows (131) are not connected to all of the switching columns (132) via relays.

27. Cross-connect, according to any of the claims 22 to 26, characterised in that an algorithm is provided for the selection of one of a group of second items (104) connected to the cross-connect for a selected first item (101) from a group of first items (101) connected to the cross-connect.

28. Cross-connect, according to claim 27, characterised in that said algorithm is arranged to select the second item (104) where the rest of the first items (101) able to connect to said second item (104), either already are connected to another second item (104),

or have the highest possibility to be connected to another second item (104).

29. Cross-connect, according to claim 27 or 28, c h a r a c t e r i s e d in that the first items (101) are subscriber's terminals and the second items (104) are xDSL modems.

30. Cross-connect, according to any of the claims 27 to 29, c h a r a c t e r i s e d in that the cross-connect includes a back (164) connected with at least one "page" (162) including the relays.

31. System for telecommunication, including subscribers' terminals (101) connected to line cards (103), and including a cross-connect (105, 106, 107, 116, 117) arranged to connect selected subscribers' terminals (101) to modems or similar (104) with the aid of splitter filters (102), c h a r a c t e r i s e d in that the cross-connect (105, 106, 107, 116, 117) is according to any of the claims 22 to 29.

32. System for telecommunication, according to claim 31, c h a r a c t e r i s e d in that the subscriber's terminals (101), the line cards (104) and the cross-connect (105, 106, 107, 116, 117) are connected to the splitter-filter (102), while the modems (104) are connected to the cross-connect (105, 106, 107, 116, 117).

33. System for telecommunication, according to claim 31, c h a r a c t e r i s e d in that the subscriber's terminals (101) are connected to a first cross-connect (106) and to a separate relay (108); in that the line cards (103) are connected to a second cross-connect (107) and the separate relay (108); and in that the modems (104) and the first cross-connect (106) and the second cross-connect (107) are connected to the splitter-filters (102).

34. System for telecommunication, according to claim 31, c h a r a c t e r i s e d in that the subscriber's terminals (101) are connected to a first cross-connect (116); in that the line cards (103) are connected to a second cross-connect (117); in that the modems (104) and the first cross-connect (116) and the second cross-connect (117) are connected to the splitter-filter (102); and in that the first cross-connect (116) and the second cross-connect (117) are connected to each other.

35. Method for connecting one of several first items (101), to one of several second items (104), c h a r a c t e r i s e d in that the first items (101) and the second items (104) are connected to a cross-connect (105, 106, 107, 116, 117) including switching columns (132), switching rows (131), addressing columns (122), addressing rows (121) and fuse-relays; and by the following steps:

- selecting a second item (104) to which a selected first item (101) is to be connected,

- addressing an addressing column (122) and an addressing row (121) in the cross-connect (105, 106, 107, 116, 117),

- transmitting a sufficiently high current through said addressing row (121) and addressing column (122), thereby blowing a fuse (123) in one of the fuse-relays, thereby causing a connection to be made or broken between a switching row (131) and a switching column (132), thereby connecting the selected first item (101) with the selected second item (102).

36. Method according to claim 35, c h a r a c t e r i s e d in that the cross-connect further includes additional switching rows (141); and by causing a connection to be made or broken between a switching row (121) and an additional switching row (141) when the fuse (123) is blown.

37. Method according to claim 35 or 36, c h a r a c t e r i s e d by selecting the second item (104) where the rest of the first items (101) able to connect to said second item (104), either already are connected to another second item (104), or have the highest possibility to be connected to another second item (104).

38. Method according to any of the claims 35 to 37, c h a r a c t e r i s e d in that the first items (101) are terminals and the second items (104) are xDSL modems.